

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 | 1. (Currently amended) A method for managing ~~surplus~~ heap memory in a
2 | multitasking system, comprising:
 - 3 | reserving a guaranteed amount of heap memory for a task from a common
4 | heap in the multitasking system, wherein the heap memory reserved for the task is
5 | separate from heap memory reserved for all other tasks in the common heap of the
6 | multitasking system;
7 | receiving a request from the task to allocate heap memory for a new
8 | object; and
9 | if heap memory is available in the guaranteed amount of heap memory for
10 | the task,
11 | allocating heap memory for the new object from the guaranteed
12 | amount of heap memory;
13 | otherwise, performing one of the following:
 - 14 | garbage collection on the heap memory reserved for the
15 | task, wherein the task space is separate from all other task space, whereby other
16 | tasks do not need to be paused during garbage collection; and
17 | if surplus heap memory is available in the common heap in
18 | addition to heap memory allocated to tasks,
19 | reserving an additional amount of heap memory to
20 | the task from the common heap, and

21 allocating heap memory for the new object from the
22 additional amount of heap memory, whereby allocating heap
23 memory for the new object from the additional amount of heap
24 memory delays garbage collection.

1 2. (Previously presented) The method of claim 1, wherein if surplus heap
2 memory is not available in the common heap in addition to heap memory
3 allocated to tasks, the method further comprises
4 performing garbage collection on heap memory to reclaim unused reserved
5 heap memory, and
6 allocating heap memory for the new object from reclaimed surplus heap
7 memory.

1 3. (Previously presented) The method of claim 1, wherein reserving the
2 guaranteed amount of heap memory from the common heap includes:
3 determining if there is sufficient heap memory available in the common
4 heap; and
5 if not, performing garbage collection to reclaim allocated surplus heap
6 memory, and
7 reserving heap memory for the task from reclaimed heap memory.

1 4. (Previously presented) The method of claim 1, wherein heap memory in
2 the common heap is managed using a generational garbage collector.

1 5. (Original) The method of claim 4, wherein a plurality of tasks share an
2 old generation of the generational garbage collector.

1 6. (Original) The method of claim 5, wherein each task of the plurality of
2 tasks has a new generation of the generational garbage collector belonging to the
3 task.

1 7. (Original) The method of claim 4, wherein the generational garbage
2 collector is a copying garbage collector.

1 8. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for managing ~~surplus~~ heap memory in a multitasking system, the method
4 comprising:
5 reserving a guaranteed amount of heap memory for a task from a common
6 heap in the multitasking system, wherein the heap memory reserved for the task is
7 separate from heap memory reserved for all other tasks in the common heap of the
8 multitasking system;
9 receiving a request from the task to allocate heap memory for a new
10 object; and
11 if heap memory is available in the guaranteed amount of heap memory for
12 the task,
13 allocating heap memory for the new object from the guaranteed
14 amount of heap memory;
15 otherwise, performing one of the following:
16 garbage collection on the heap memory reserved for the
17 task, wherein the task space is separate from all other task space, whereby other
18 tasks do not need to be paused during garbage collection; and
19 if surplus heap memory is available in the common heap in
20 addition to heap memory allocated to tasks,

21 reserving an additional amount of heap memory to
22 the task from the common heap, and
23 allocating heap memory for the new object from the
24 additional amount of heap memory, whereby allocating heap
25 memory for the new object from the additional amount of heap
26 memory delays garbage collection.

1 9. (Previously presented) The computer-readable storage medium of claim
2 8, wherein if surplus heap memory is not available in the common heap in
3 addition to heap memory allocated to tasks, the method further comprises:
4 performing garbage collection on heap memory to reclaim unused reserved
5 heap memory, and
6 allocating heap memory for the new object from reclaimed surplus heap
7 memory.

1 10. (Previously presented) The computer-readable storage medium of
2 claim 8, wherein reserving the guaranteed amount of heap memory from the
3 common heap includes:
4 determining if there is sufficient heap memory available in the common
5 heap; and
6 if not, performing garbage collection to reclaim allocated surplus heap
7 memory, and
8 reserving heap memory for the task from reclaimed heap memory.

1 11. (Previously presented) The computer-readable storage medium of
2 claim 8, wherein heap memory in the common heap is managed using a
3 generational garbage collector.

1 12. (Original) The computer-readable storage medium of claim 11,
2 wherein a plurality of tasks share an old generation of the generational garbage
3 collector.

1 13. (Original) The computer-readable storage medium of claim 12,
2 wherein each task of the plurality of tasks has a new generation of the generational
3 garbage collector belonging to the task.

1 14. (Original) The computer-readable storage medium of claim 11,
2 wherein the generational garbage collector is a copying garbage collector.

1 15. (Currently amended) An apparatus that facilitates managing surplus
2 computer heap memory in a multitasking system, comprising:
3 a computing device including a multitasking virtual machine;
4 a reserving mechanism within the multitasking virtual machine that is
5 configured to reserve a guaranteed amount of physical heap memory for a task
6 from a new generation space within a common heap in the multitasking system,
7 wherein the heap memory reserved for the task is separate from heap memory
8 reserved for all other tasks in the common heap of the multitasking system;
9 a receiving mechanism within the multitasking virtual machine that is
10 configured to receive a request from the task to allocate heap memory for a new
11 object;
12 the reserving mechanism that is further configured to reserve an additional
13 amount of heap memory to the task from the common heap; and
14 an allocating mechanism within the multitasking virtual machine that is
15 configured to allocate heap memory for the new object from the guaranteed
16 amount of heap memory.

1 16. (Previously presented) The apparatus of claim 15, further comprising:
2 a garbage collecting mechanism that is configured to perform a garbage
3 collection on heap memory to reclaim unused reserved heap memory, and
4 the allocating mechanism that is further configured to allocate heap
5 memory for the new object from reclaimed heap memory

1 17. (Previously presented) The apparatus of claim 15, further comprising:
2 a determining mechanism that is configured to determine if there is
3 sufficient heap memory available in the common heap; and
4 a garbage collection mechanism that is configured to perform a garbage
5 collection to reclaim allocated surplus heap memory, and
6 the reserving mechanism that is further configured to reserve heap memory
7 for the task from reclaimed heap memory.

1 18. (Original) The apparatus of claim 15, further comprising a generational
2 garbage collector.

1 19. (Original) The apparatus of claim 18, wherein a plurality of tasks share
2 an old generation of the generational garbage collector.

1 20. (Original) The apparatus of claim 19, wherein each task of the plurality
2 of tasks has a new generation of the generational garbage collector belonging to
3 the task.

1 21. (Original) The apparatus of claim 18, wherein the generational garbage
2 collector is a copying garbage collector.